

Title (en)
Wi-Fi position fix

Title (de)
WiFi-Positionsbestimmung

Title (fr)
Relevé de position Wi-Fi

Publication
EP 2574954 A1 20130403 (EN)

Application
EP 12160689 A 20120322

Priority
US 201113249948 A 20110930

Abstract (en)
A method of forming an estimate of the two-dimensional position of a radio receiver relative to a plurality of radio transmitters each having an associated position estimate and a position uncertainty expressible as an uncertainty ellipse having major and minor axes, the method comprising: receiving at the radio receiver signals from the plurality of radio transmitters and forming in dependence on those received signals a set of transmitter weighting values each expressing a measure of the distance of a respective radio transmitter from the radio receiver; for each of the plurality of radio transmitters, scaling an uncertainty vector describing the orientation of the respective uncertainty ellipse in a predetermined coordinate system by a scaling value dependent on the respective transmitter weighting value and rotating that uncertainty vector by multiplying its argument by a factor of four; summing the scaled vectors of the plurality of radio transmitters so as to form a total vector; dividing the argument of the total vector by a factor of four and using the resulting rotated total vector to define a compound coordinate basis comprising first and second coordinate axes; and forming an estimate of the two-dimensional position of the radio receiver in the compound coordinate basis by: projecting the major and minor axes of each uncertainty ellipse onto the first and second coordinate axes so as to form a set of projected components for each axis; summing the projected components of each axis so as to form a total uncertainty along each axis; for each uncertainty ellipse, forming first and second coordinate axis weighting values from the respective transmitter weighting values scaled such that the first/second coordinate axis weighting value decreases as the total uncertainty along that first/second coordinate axis increases; and calculating the position of the radio receiver by means of a weighted centroid using the first and second coordinate axis weighting values and the position estimates of the plurality of the radio transmitters expressed in the compound coordinate basis.

IPC 8 full level
G01S 5/02 (2010.01)

CPC (source: EP US)
G01S 5/02 (2013.01 - EP US); **G01S 5/0278** (2013.01 - EP US); **G01S 5/14** (2013.01 - US)

Citation (search report)
• [A] WO 2010125113 A1 20101104 - POLE STAR SA [FR], et al
• [A] WO 2007001660 A2 20070104 - MICROSOFT CORP [US]

Cited by
US2024236926A9; WO2015160455A3

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
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DOCDB simple family (publication)
EP 2574954 A1 20130403; **EP 2574954 B1 20150225**; CN 103033794 A 20130410; CN 103033794 B 20160824; US 2013082878 A1 20130404; US 8994590 B2 20150331

DOCDB simple family (application)
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